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EXAMINER

CARROLL J

ART UNIT

PAPER NUMBER

2508

26

10/03/97

DATE MAILED:

This is a communication from the examiner in charge of your application.
COMMISSIONER OF PATENTS AND TRADEMARKS

☒ This application has been examined. ☒ Responsive to communication filed on 05/09/97 ☐ This action is made final.

A shortened statutory period for response to this action is set to expire 3 month(s), 2 days from the date of this letter.
Failure to respond within the period for response will cause the application to become abandoned. 35 U.S.C. 133

Part I THE FOLLOWING ATTACHMENT(S) ARE PART OF THIS ACTION:

- ☒ Notice of References Cited by Examiner, PTO-892.
- ☐ Notice of Draftsman's Patent Drawing Review, PTO-948.
- ☒ Notice of Art Cited by Applicant, PTO-1449.
- ☐ Notice of Informal Patent Application, PTO-152.
- ☐ Information on How to Effect Drawing Changes, PTO-1474.
- ☐

Part II SUMMARY OF ACTION

1. ☒ Claims 17-23, 25-42, 44, 46-65 are pending in the application.

Of the above, claims _____ are withdrawn from consideration.

2. ☐ Claims _____ have been cancelled.

3. ☐ Claims _____ are allowed.

4. ☒ Claims 17-23, 25-42, 44, 46-65 are rejected.

5. ☐ Claims _____ are objected to.

6. ☐ Claims _____ are subject to restriction or election requirement.

7. ☐ This application has been filed with informal drawings under 37 C.F.R. 1.85 which are acceptable for examination purposes.

8. ☐ Formal drawings are required in response to this Office action.

9. ☐ The corrected or substitute drawings have been received on _____. Under 37 C.F.R. 1.84 these drawings are ☐ acceptable; ☐ not acceptable (see explanation or Notice of Draftsman's Patent Drawing Review, PTO-948).

10. ☐ The proposed additional or substitute sheet(s) of drawings, filed on _____, has (have) been ☐ approved by the examiner; ☐ disapproved by the examiner (see explanation).

11. ☐ The proposed drawing correction, filed _____, has been ☐ approved; ☐ disapproved (see explanation).

12. ☐ Acknowledgement is made of the claim for priority under 35 U.S.C. 119. The certified copy has ☐ been received ☐ not been received ☐ been filed in parent application, serial no. _____; filed on _____.

13. ☐ Since this application appears to be in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under Ex parte Quayle, 1935 C.D. 11; 453 O.G. 213.

14. ☐ Other

EXAMINER'S ACTION

We have entered as Paper No. 24 the PRELIMINARY AMENDMENT filed under 37 C.F.R. 1.62 filed 05 May 1997.

We object to the first sentence of the Specification because it does not contain, in a single sentence, all pertinent continuing data.

Due to the amendment we withdraw the objection under 37 C.F.R. 1.83(a) and Claim rejections under 35 U.S.C. 112, as expressed in Paper No. 22.

We reject Claim 58 under the second paragraph of 35 U.S.C. 112 as vague and indefinite because there is no antecedent basis for "the top surface of said epitaxial layer," lastly recited.

In consideration of the REMARKS of amendment pages 4 through 8, the Applicants indicated that we engaged in inappropriate speculation and hindsight to conclude from at least Figures 10 through 12 that Tonnel expected one to reproduce the Tonnel transistor possessing the claimed characteristics.

In response, we respectfully disagree.

Not discerning a reasonable basis to conclude that the presently claimed subject matter is patentable, we maintain the following Claim rejections.

We reject as unpatentable Claims 17 through 22, Claims 25, 26, 29, 30, 32 through 37, 44, 46 through 49, 51 through 58 and 64 under 35 U.S.C. 103 over considerations of Tonnel and Ueda *et al.*, as discussed in the record, but further considered with presently cited and provided Jambotkar and Lidow *et al.* '286. Jambotkar taught that one may reduce the electric field at a PN-junction between base and drain regions by introducing a close-proximity spacing factor to appropriately space adjacently disposed base regions from one another to accordingly reduce the electric field characteristic thereat and, accordingly, to increase the breakdown voltage characteristic of the device. Lidow *et al.* similarly taught the appropriate use of the close-proximity spacing factor, as in Jambotkar, but further found advantageous the deeper base regions to accordingly still further increase the device breakdown voltage characteristic. We thus conclude that one

would have accordingly learned therefrom and recognized the improved breakdown voltage characteristic inherently intrinsic of the obvious Tonnel device due to a dramatic reduction of electric field at junction curvature portions thereof. Thus, the present situation comes under the Court's directive that a newly discovered property inherently possessed by things in the prior art does not cause a claim drawn to those things to distinguish over the prior art, after at least *In re Swinehart*, 169 USPQ 226 (CCPA 1971).

We reject Claim 50 as unpatentable under 35 U.S.C. 103 over considerations of Tonnel, Ueda *et al.*, Lidow *et al.* '286, Jambotkar and Lisiak *et al.*, as discussed *supra* and in the record.

We reject Claims 31, 60, 61 and 62 under 35 U.S.C. 103 over considerations of Tonnel, Ueda *et al.*, Jambotkar, Lidow *et al.* '286 and Yamabe *et al.*, as discussed *supra* and in the record.

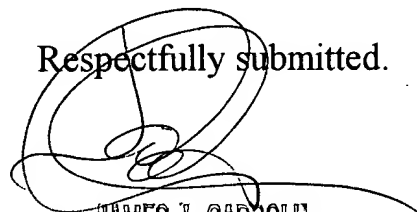
We reject Claims 23, 27, 28, 38, 39, 40, 41, 59, 60, 61, 62 and 65 under 35 U.S.C. 103 Tonnel, Ueda *et al.*, Jambotkar, Lidow *et al.* '286 and Yamabe *et al.*, as discussed *supra*, but further considered with presently cited and provided Hendrickson who suggested, with Figure 14, that a device similar to the obvious Tonnel device, may be advantageously replicated into the hexagonal pattern across a wafer surface. We thus conclude it to have been obvious for one to have accordingly replicated the obvious Tonnel device.

We reject Claims 17 through 23, Claims 25 through 42, Claim 44, and Claims 46 through 65 under the judicially established doctrine of obviousness-type double patenting as unpatentable over Patent Claim 2 and its dependent Claims of US 5,072,266, but further considered with Tonnel, Lisiak *et al.*, Ueda *et al.*, Yamabe *et al.*, Jambotkar, Lidow *et al.* '286 and Hendrickson, for teaching the differences between the claimed subject matters would have been obvious, as discussed *supra*, and in the record, notwithstanding the fact that *In re Schneller* made no demands upon us to analyze differences because only a single embodiment was originally disclosed.

We reject all Claims.

An inquiry concerning this communication may be directed to Examiner J. Carroll at telephone number 703-308-4926 or, to the Reception Person for Group 2500 at telephone number 703-308-0956. Written communications may be received in Art Unit 2508 at FAX number 703-308-7723.

Respectfully submitted.



JAMES J. CARROLL
EXAMINER
ART UNIT 253